July 2024 Monthly Weather Report

This document provides a summary of the UK's weather and climate statistics for July 2024.

Table of Contents

1. UK overview
2. Weather impacts
3. Monthly extremes
4. Monthly maps
5. Monthly climate statistics
6. Monthly time-series
7. Daily time-series
8. Daily maximum temperature maps - calendar view
9. Daily minimum temperature maps - calendar view
10. Daily rainfall maps - calendar view
11. Monthly atmospheric circulation
12. Weather diary
13. Notes

UK overview

The start of July continued June's theme of cooler than average weather, but with the addition of more wet weather. Temperatures were consistently and persistently below average across the UK for the first two weeks. Low pressure across the UK led to unsettled weather, and several frontal systems brought bands of rain. Areas of southwest, southeast and northeast England had already received more than the average July rainfall by mid-month. Temperatures increased in the third week of July, with temperatures in the upper 20s across southeast England, reaching the 30s in some areas. Heathrow and Kew Gardens (Greater London) both saw 32.0°C on the 30th, the highest temperature of the year so far. The temperature remained above average to the end of the month, and felt occasionally muggy especially in the southeast. In the north of the UK, temperatures at the end of the month were above average as well, although not quite as high as in the south. Scattered showers in the penultimate week cleared slightly in the last few days of the month, although areas of south-west Scotland and northeastern England experienced some wet weather.

By the 15th, the mean temperature for the UK was -2.0°C below average, and all four countries were around 2°C below the average temperature. This was provisionally the coldest start to July since 2004. However, the warm end to the month led to an overall mean temperature of 14.8°C, with an anomaly of just -0.5°C. July rainfall was average for the UK (82.4mm, or 100% of the long-term average July rainfall), but wetter than average for areas in southern England, which saw 129% of the average rainfall. Scotland, Wales and Northern Ireland were slightly drier than average. The wet start to the month saw counties including Bristol, Buckinghamshire, and Tyne and Wear all experience over 100% of their monthly rainfall by mid-month. Sunshine duration overall was below average, with the UK experiencing 153.7 hours of sunshine, 89% of the average July sunshine hours.

Reference climatology used for calculating anomalies is the period 1991-2020 unless otherwise stated.

Weather impacts

- **Hot spell in the final week of July saw many areas in southeastern England experiencing temperatures over 30°C**
- **Prolonged periods of rain on the 9th, 10th and 15th led to flooding in Scotland and England**

July saw little in the way of impactful weather, with no amber warnings issued for the second successive month. The first half of the month saw changeable, mainly Atlantic-dominated weather with temperatures below average across the UK. The latter half of the month saw more settled weather with temperatures exceeding 30°C across southern England, but with an increase in occasionally thundery weather as well.

A period of prolonged rain across north-east Scotland on the 9th and 10th led to reports of road flooding and some road closures in various locations including Peterhead, Elgin and Aberdeen. Further south, the same band of rain gave way to clusters of heavy, thundery downpours. One such downpour in Merseyside on the evening of the 9th led to reports of road and property flooding across the area, including in the same location where two fatalities had occurred in August of the previous year. Cleveland and North Yorkshire also reported flooding on the 9th.

On the 15th, widespread rain hit the southern half of the UK as well, with heavy downpours affecting parts of southern and eastern Scotland on the 16th. Local traffic disruption in Fife was reported, and a golf course clubhouse was reportedly damaged by floodwater ingress.

There was a period of settled weather in the second half of the month, with temperatures rising to around 30°C across southern England, especially in the south-east, for several days. There was a threat of a thundery breakdown of the weather in the last few days of the month.

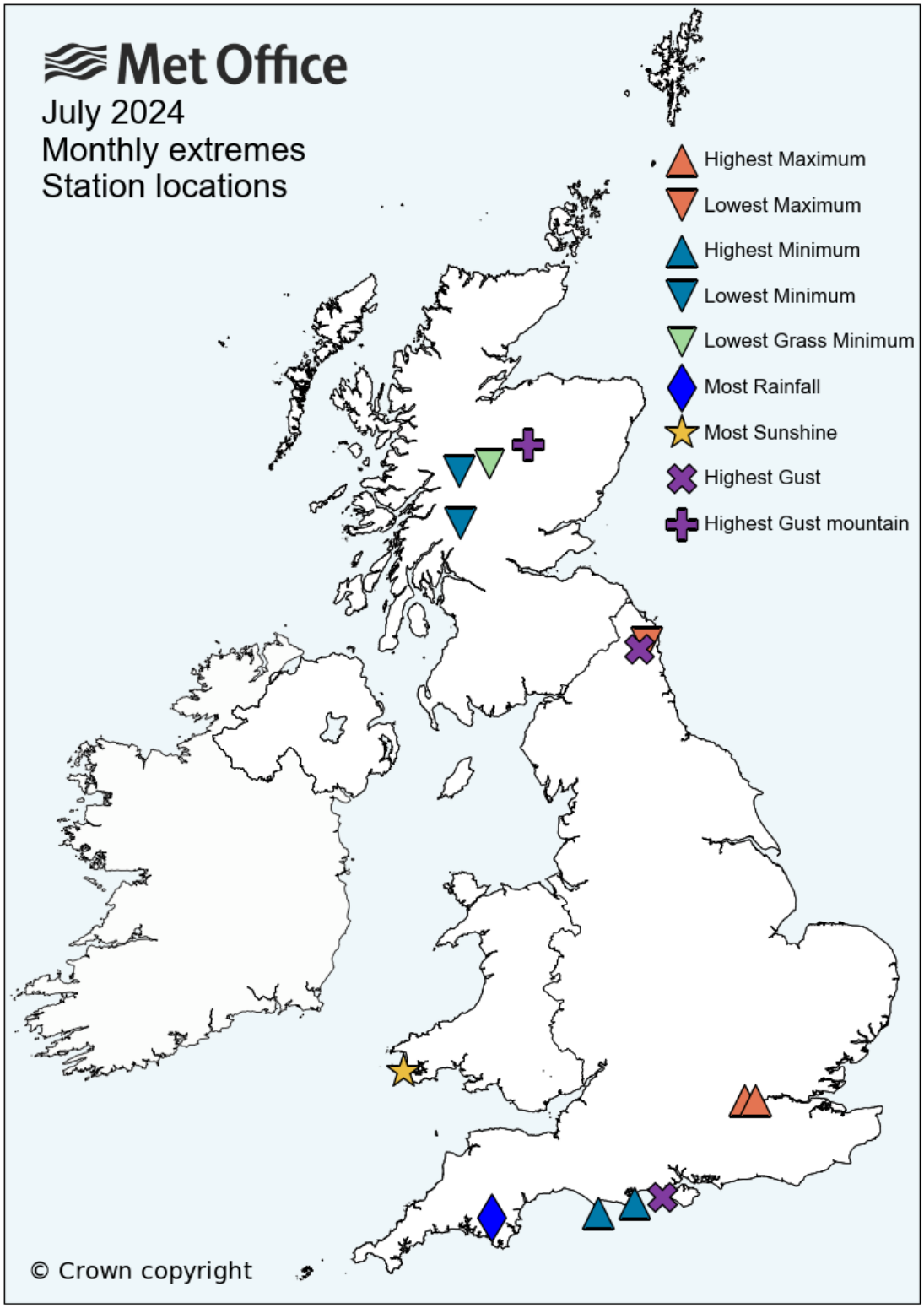
Monthly extremes

The table below lists UK monthly weather extremes recorded at individual weather stations during July 2024 from data available on 02/08/2024. The map shows the location of these stations.

Highest Maximum	**32.0°C** on **30th** at Heathrow (Greater London, 25mAMSL) and Kew Gardens (Greater London, 6mAMSL)
Lowest Maximum	**10.8°C** on **13th** at Brizlee Wood (Northumberland, 250mAMSL)
Highest Minimum	**19.6°C** on **31st** at Isle Of Portland (Dorset, 52mAMSL) and Swanage (Dorset, 10mAMSL)
Lowest Minimum	**1.7°C** on **31st** at Tulloch Bridge (Inverness-shire, 249mAMSL) and Tyndrum No 3 (Perthshire (in Central Region), 168mAMSL)
Lowest Grass Minimum	**-2.2°C** on **31st** at Dalwhinnie No 2 (Inverness-shire, 351mAMSL)
Most Rainfall	**75.7mm** on **8th** at White Barrow (Devon, 445mAMSL)
Most Sunshine	**15.3hr** on **7th** at Dale Fort (Dyfed, 33mAMSL)
Highest Gust	**50Kt 58mph** on **4th** at Brizlee Wood (Northumberland, 250mAMSL) also on **5th** at Wight: Needles Old Battery (Isle Of Wight, 80mAMSL)
Highest Gust (mountain*)	**72Kt 83mph** on **4th** at Cairngorm Summit (Inverness-shire, 1237mAMSL)
Greatest Snow Depth at 0900 UTC	No non-zero values.

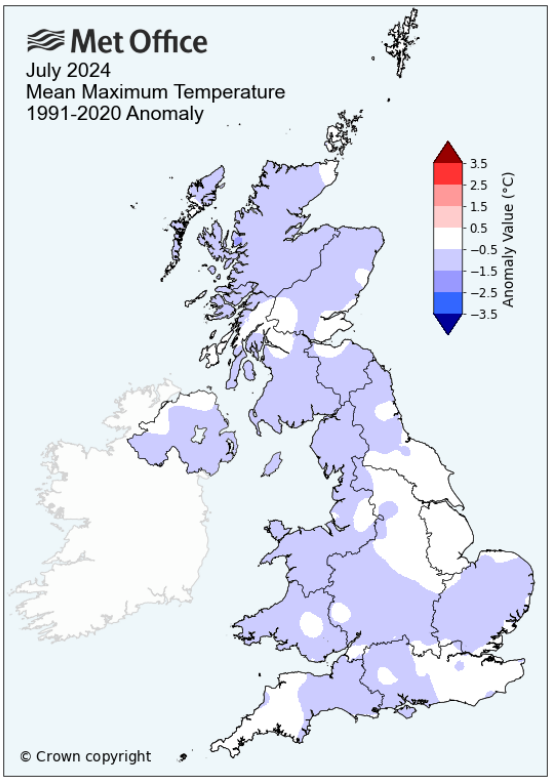
mAMSL refers to station elevation in metres above mean sea level.

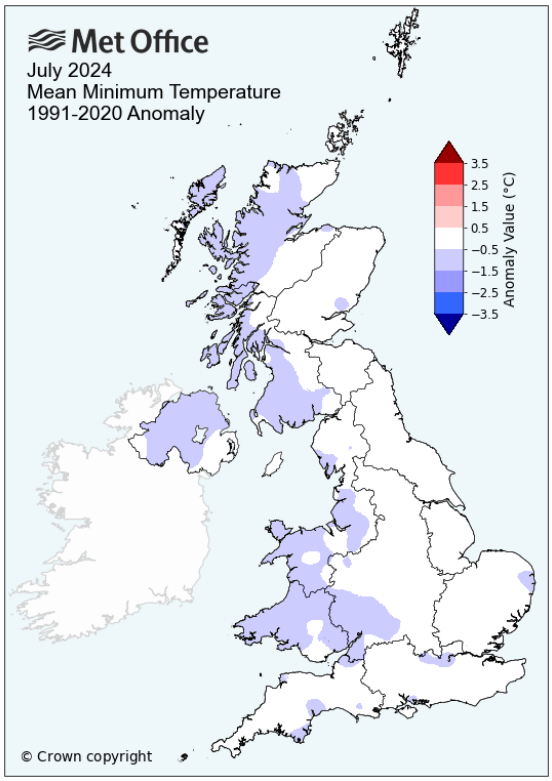
*Mountain stations are above 500mAMSL.

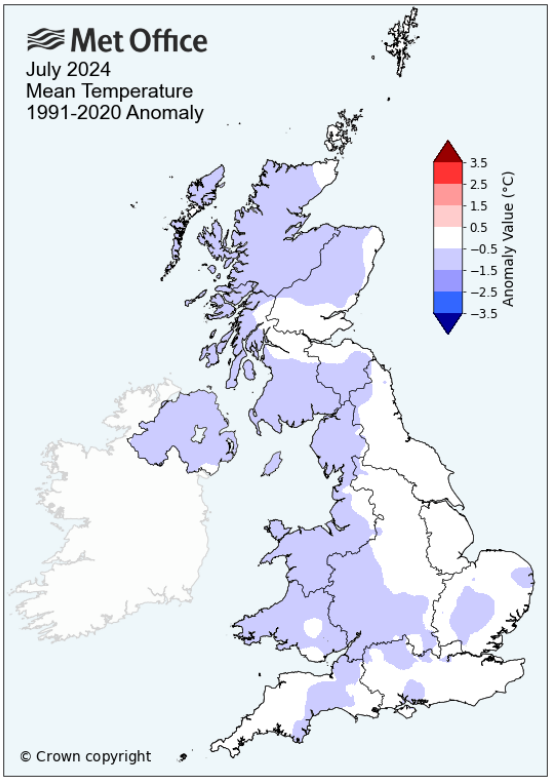

Met Office
July 2024
Monthly extremes
Station locations
Highest Maximum
Lowest Maximum
Highest Minimum
Lowest Minimum
Lowest Grass Minimum
Most Rainfall
Most Sunshine
Highest Gust
Highest Gust mountain
© Crown copyright

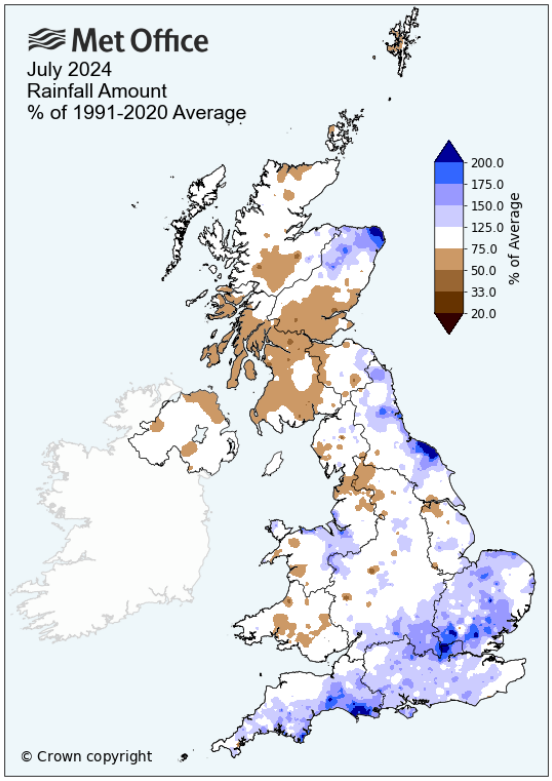
Monthly maps

These maps show monthly average daily maximum, monthly average daily minimum and monthly mean temperature and monthly rainfall for July 2024 as anomalies relative to the July 1991-2020 long term average.

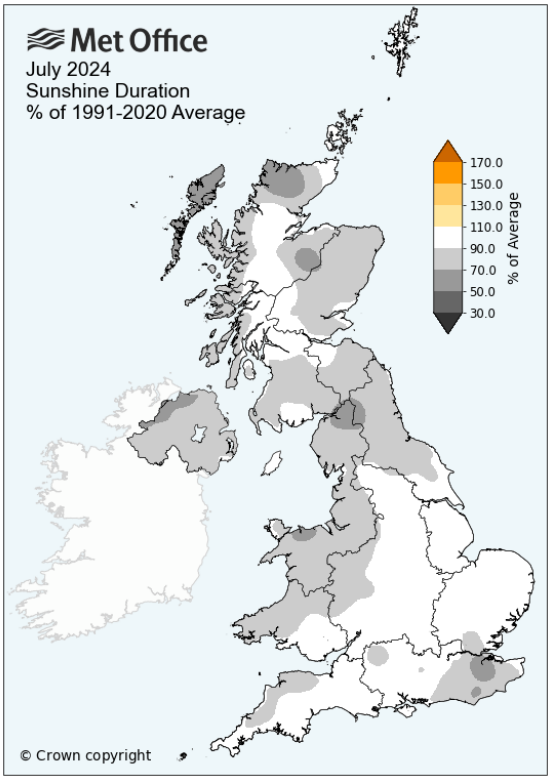


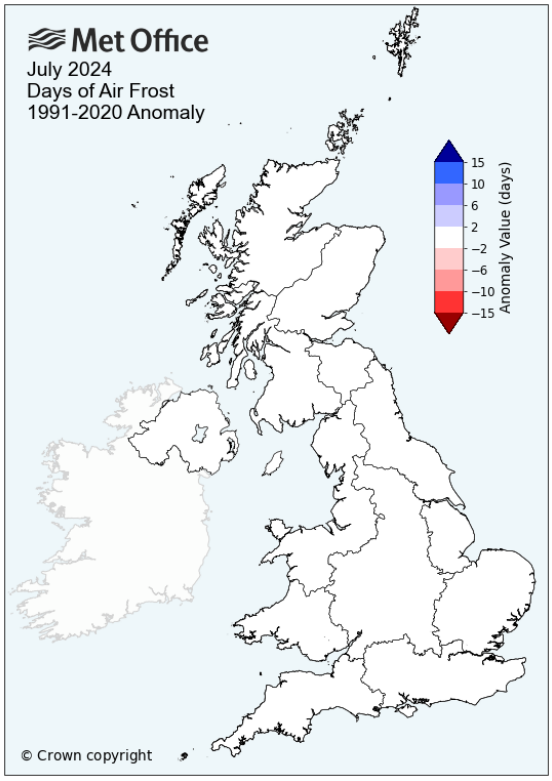


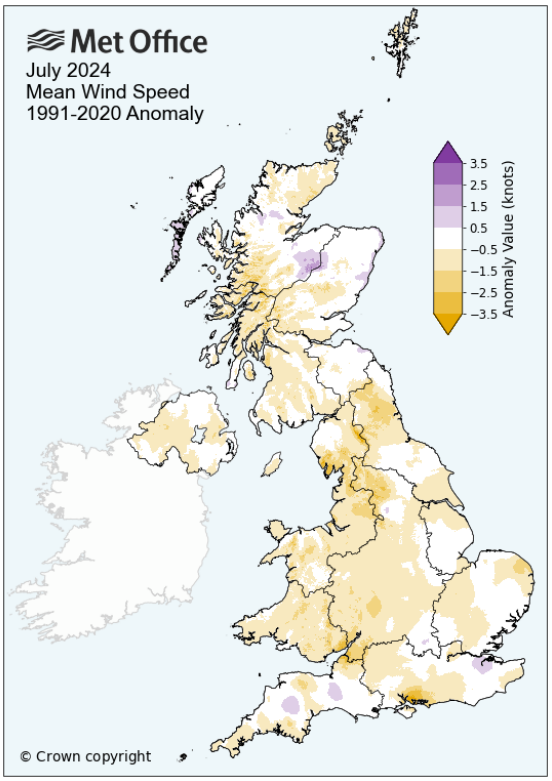


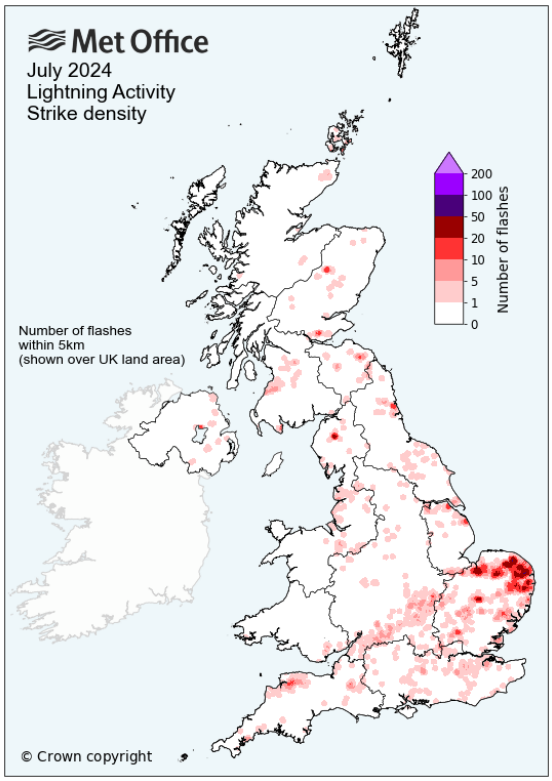


These maps show monthly sunshine, monthly air frost and monthly windspeed for July 2024 as anomalies relative to the July 1991-2020 long term average, plus a map showing lightning activity as the number of strikes within a 5km radius of any land location.









Monthly climate statistics - actuals and anomalies

These tables show the UK and national climate statistics for July 2024 for max, min and mean temperature, rainfall, sunshine and windspeed as actual values and anomalies relative to the July 1991-2020 long term average. The position of the value within the full series (in both ascending and descending order) is shown in the two 'Rank' columns. Central England Temperature (CET) and England & Wales Precipitation (EWP) are also included.

Mean maximum temperature

Region	Maxtemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	19.0	-0.6	61	81	141
England	20.6	-0.5	58	84	141
Wales	18.7	-0.7	64	78	141
Scotland	16.5	-0.8	71	71	141
Northern Ireland	18.0	-0.6	64	78	141
Central England	21.0	-0.4	52	96	147

Mean minimum temperature

Region	Mintemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	10.6	-0.4	53	89	141
England	11.5	-0.3	44	98	141
Wales	10.6	-0.6	74	68	141
Scotland	9.2	-0.5	64	78	141
Northern Ireland	10.2	-0.6	79	63	141
Central England	11.6	-0.6	84	64	147

Mean temperature

Region	Meantemp (°C)	1991-2020 Anomaly (°C)	Rank - warmest	Rank - coldest	Series length (yrs)
UK	14.8	-0.5	56	86	141
England	16.0	-0.4	51	91	141
Wales	14.6	-0.7	67	75	141
Scotland	12.8	-0.6	67	75	141
Northern Ireland	14.0	-0.6	69	73	141
Central England	16.3	-0.5	129	237	366

Rainfall

Region	Rainfall (mm)	% of 1991-2020 Average	Rank - wettest	Rank - driest	Series length (yrs)
UK	82.4	100	95	95	189
England	79.0	119	66	124	189
Wales	88.7	90	103	87	189
Scotland	87.3	84	128	62	189
Northern Ireland	77.0	86	116	74	189
EWP (England and Wales)	89.9	125	94	166	259

Sunshine

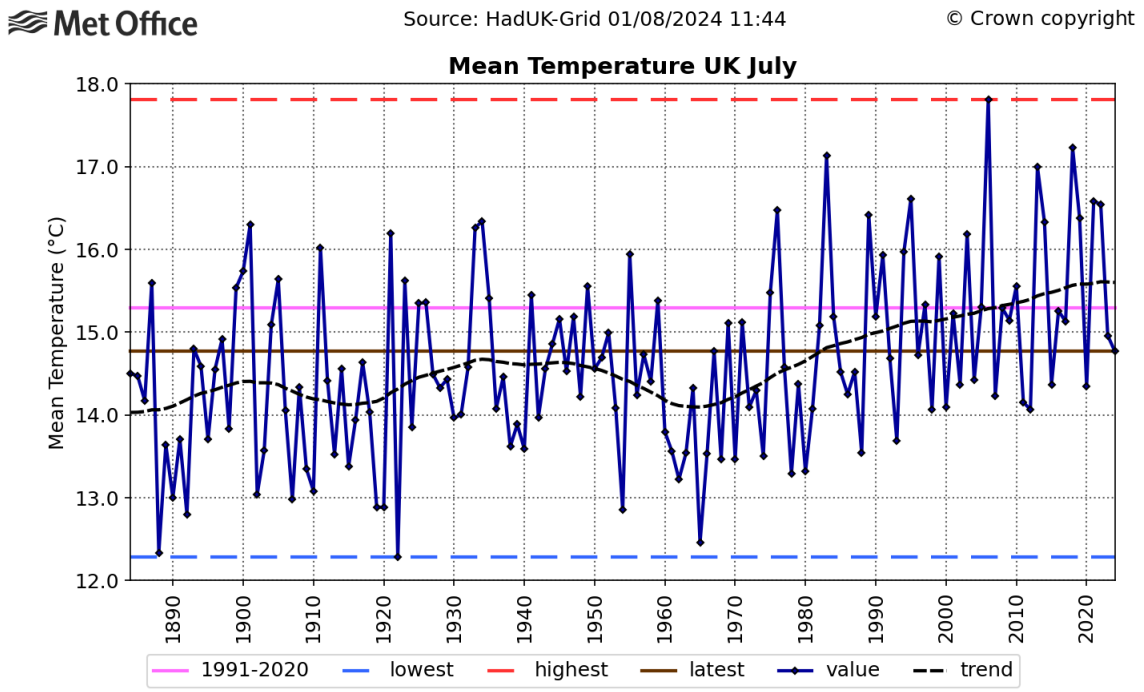
Region	Sunshine (hours)	% of 1991-2020 Average	Rank - sunniest	Rank - dullest	Series length (yrs)
UK	153.7	89	72	44	115
England	179.7	91	55	61	115
Wales	150.8	85	77	39	115
Scotland	119.2	85	82	34	115
Northern Ireland	105.9	78	93	23	115

Windspeed

Region	Windspeed (knots)	1991-2020 Anomaly (knots)	Rank - windiest	Rank - calmest	Series length (yrs)
UK	7.3	-0.6	44	13	56
England	6.5	-0.7	46	11	56
Wales	7.5	-0.9	40	17	56
Scotland	8.5	-0.4	37	20	56
Northern Ireland	6.8	-0.5	41	16	56

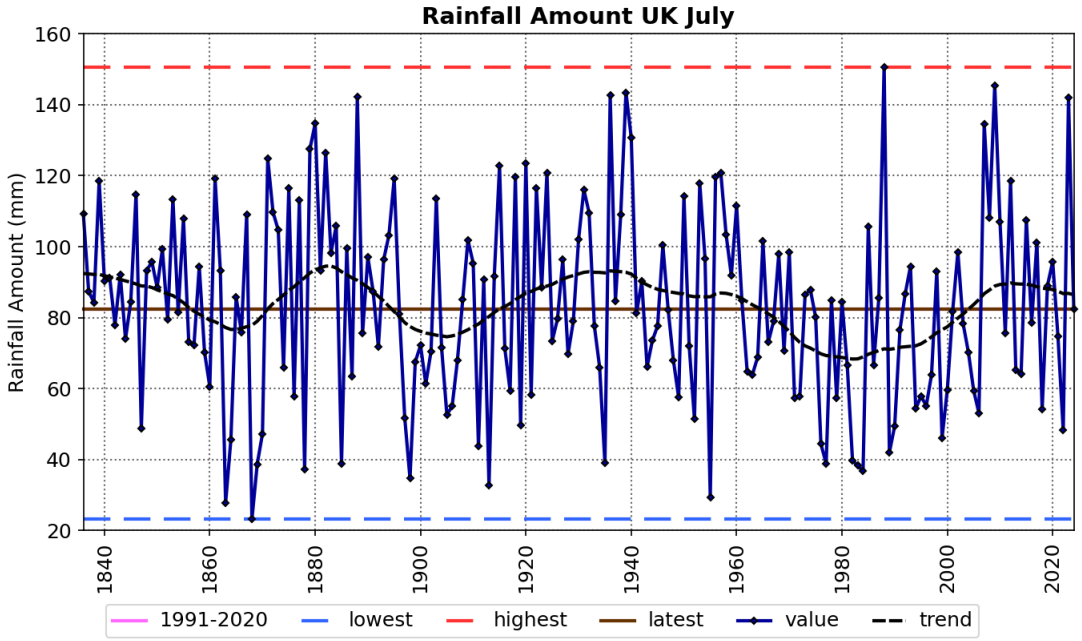
Monthly time-series

These charts show time-series for the UK for July for monthly mean temperature (from 1884), monthly rainfall (from 1836) and monthly sunshine (from 1919). The brown line shows the latest (2024) value. The hatched black line is a smoothing filter which shows the long-term trend. The tables below show statistics for the latest year, latest 10 years 2015-2024, the most recent 30-year climate reference period 1991-2020 and the 30-year baseline climate reference period 1961-1990.



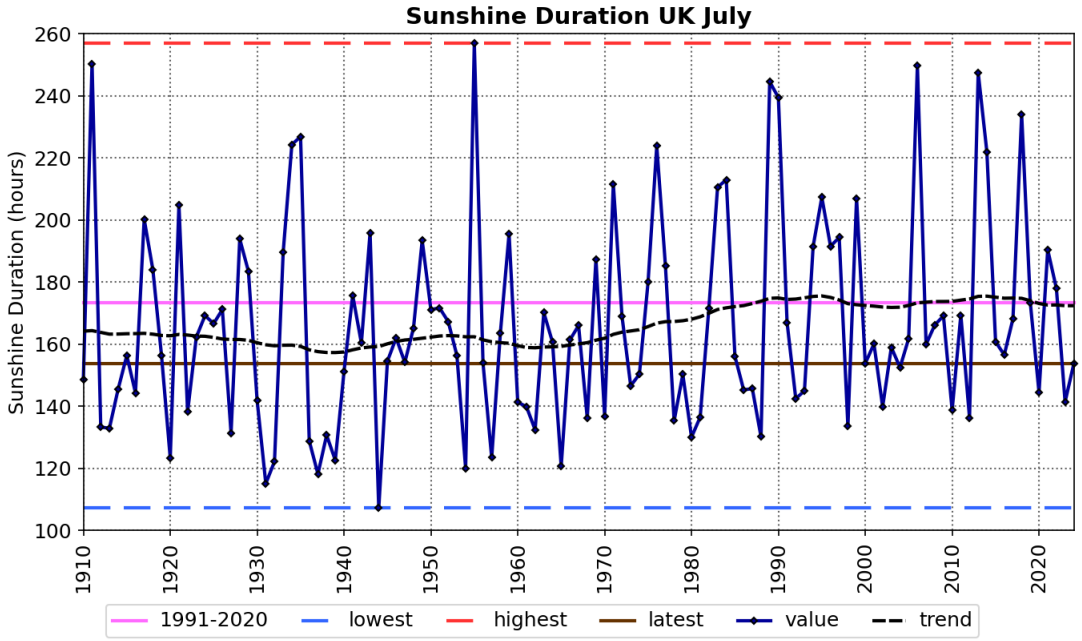
Period	1961-1990	1991-2020	2015-2024	2024
Meantemp (°C)	14.4	15.3	15.6	14.8

Met Office Source: HadUK-Grid 01/08/2024 11:44 © Crown copyright



Period	1961-1990	1991-2020	2015-2024	2024
Rainfall (mm)	72.1	82.5	87.3	82.4

Met Office Source: HadUK-Grid 01/08/2024 11:44 © Crown copyright

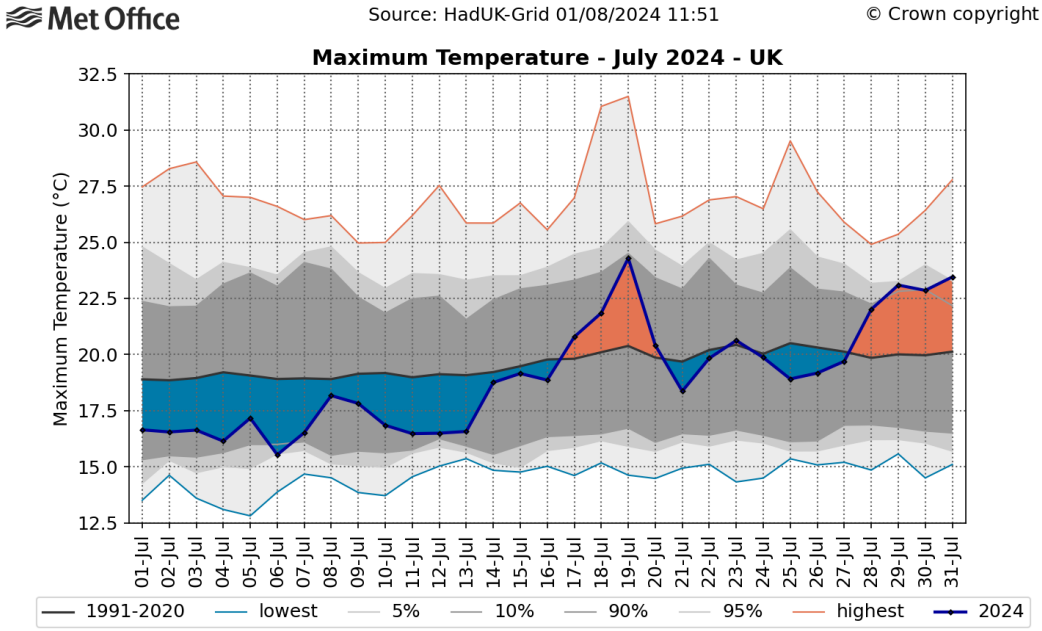


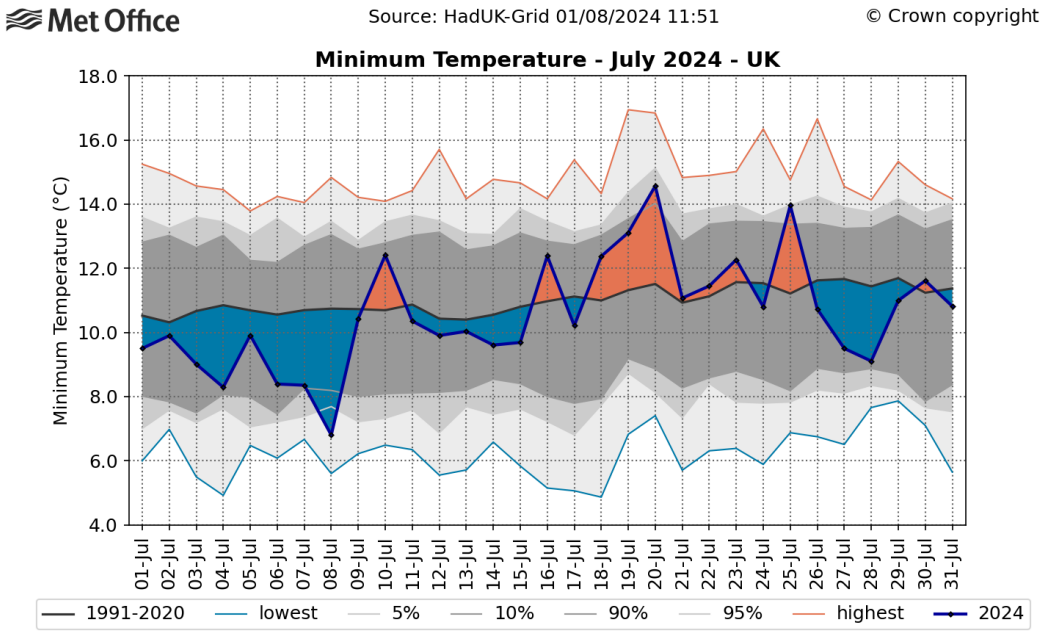
Period	1961-1990	1991-2020	2015-2024	2024
Sunshine (hours)	166.2	173.4	170.1	153.7

Daily time-series

These charts show time-series of UK area-average daily maximum and daily minimum temperature and daily rainfall for each day of July 2024. The areas shaded in grey show the highest and lowest values in the daily temperature series (from 1960) and daily rainfall series (from 1891) together with percentiles and the 1991-2020 long term averages for each day. The rainfall accumulation chart shows the daily rainfall series as an accumulation through the month.

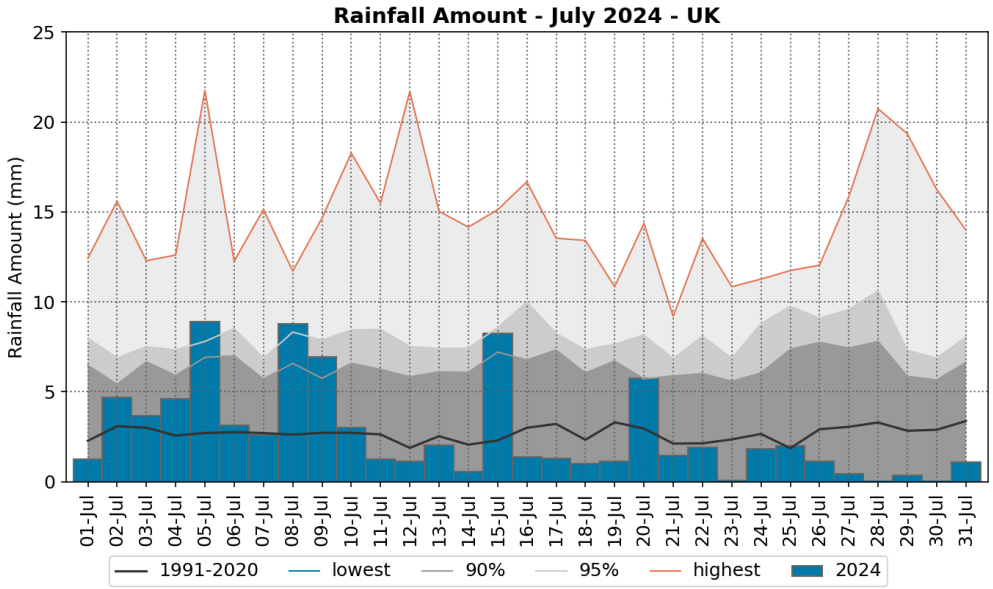
Daily maximum and daily minimum temperature



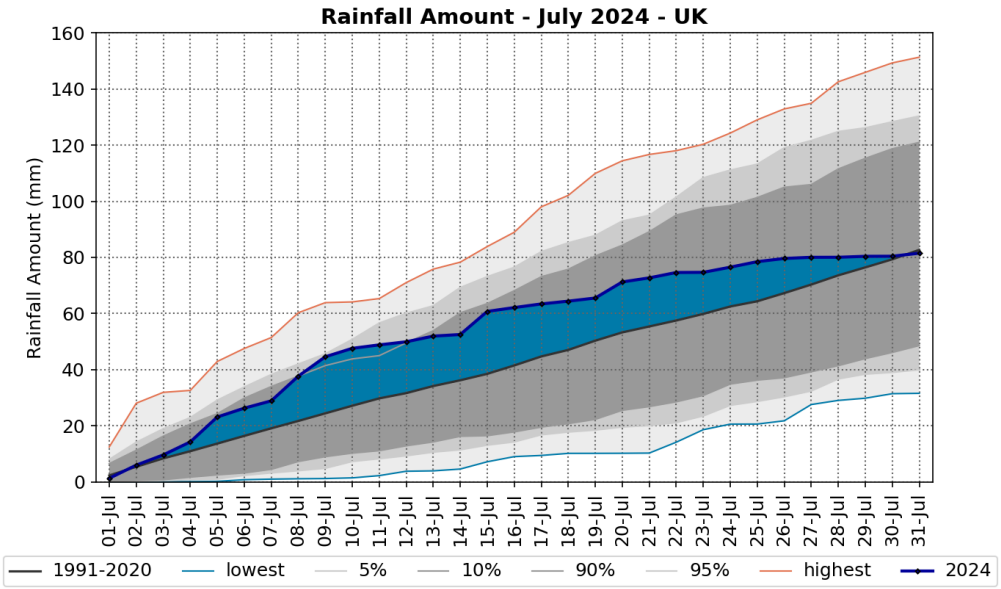


Daily rainfall and rainfall accumulation

Met Office Source: HadUK-Grid 01/08/2024 11:51 © Crown copyright



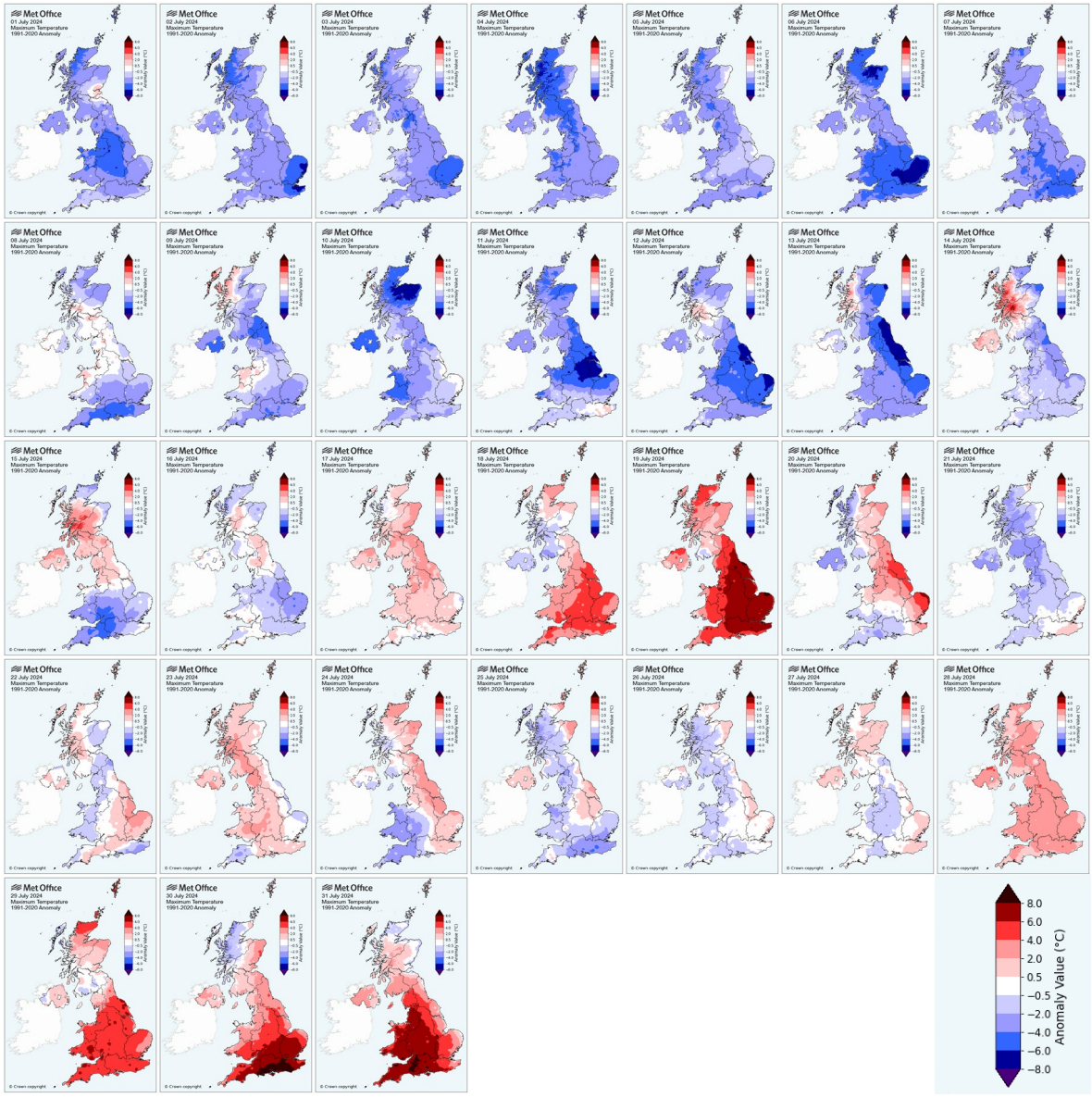
Met Office Source: HadUK-Grid 01/08/2024 11:54 © Crown copyright



Daily maximum temperature maps - calendar view

These maps show daily maximum temperatures for each day of July 2024 as anomalies relative to the July 1991-2020 long term average. The daily maximum temperature is the maximum from 0900UTC on the day in question to 0900UTC the following day. Normally, the maximum occurs in the early afternoon.

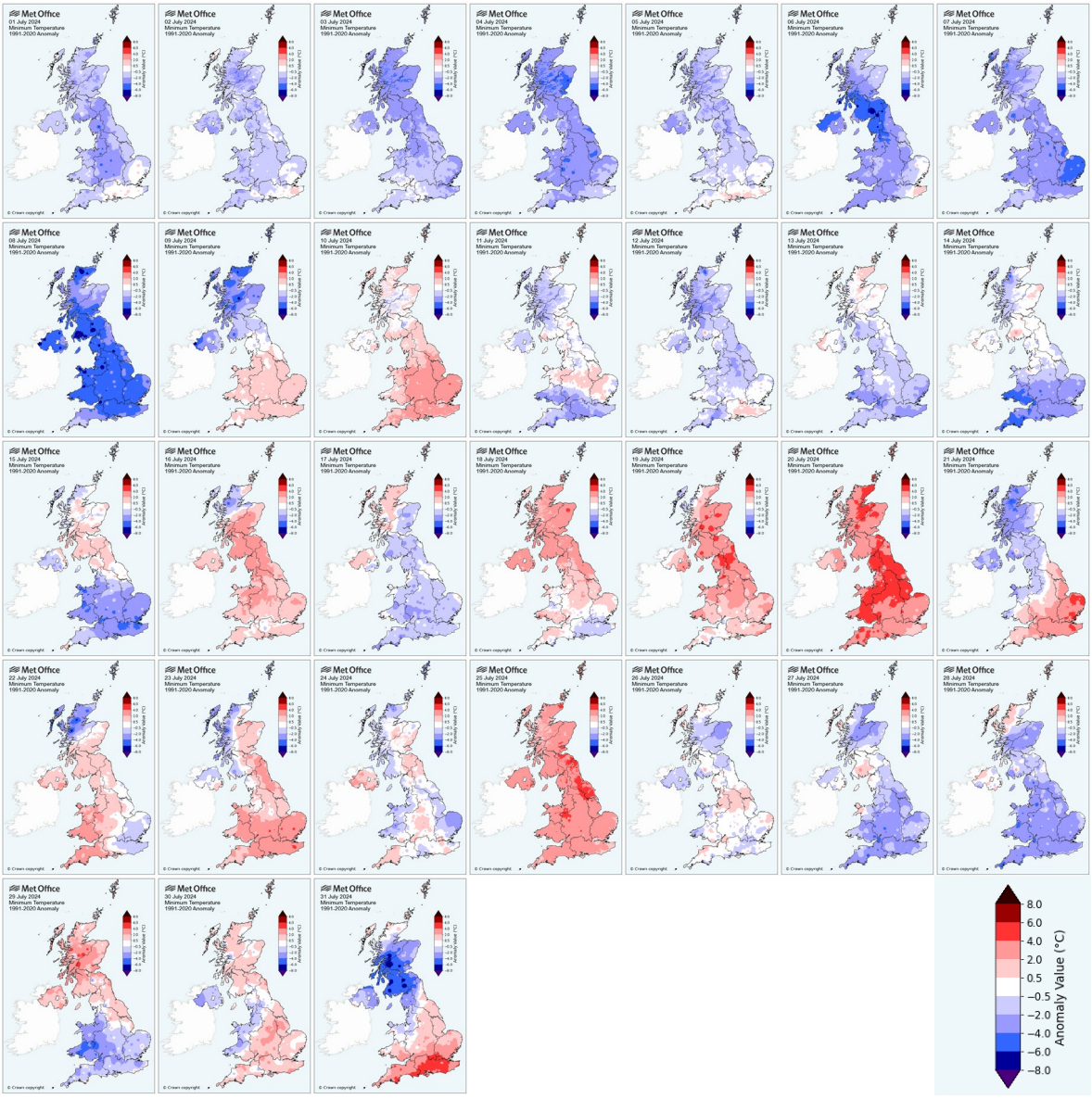
Mon	Tue	Wed	Thu	Fri	Sat	Sun



Daily minimum temperature maps - calendar view

These maps show daily minimum temperatures for each day of July 2024 as anomalies relative to the July 1991-2020 long term average. The daily minimum temperature is the minimum from 0900UTC the previous day to 0900UTC on the day in question. Normally, the minimum occurs in the early morning.

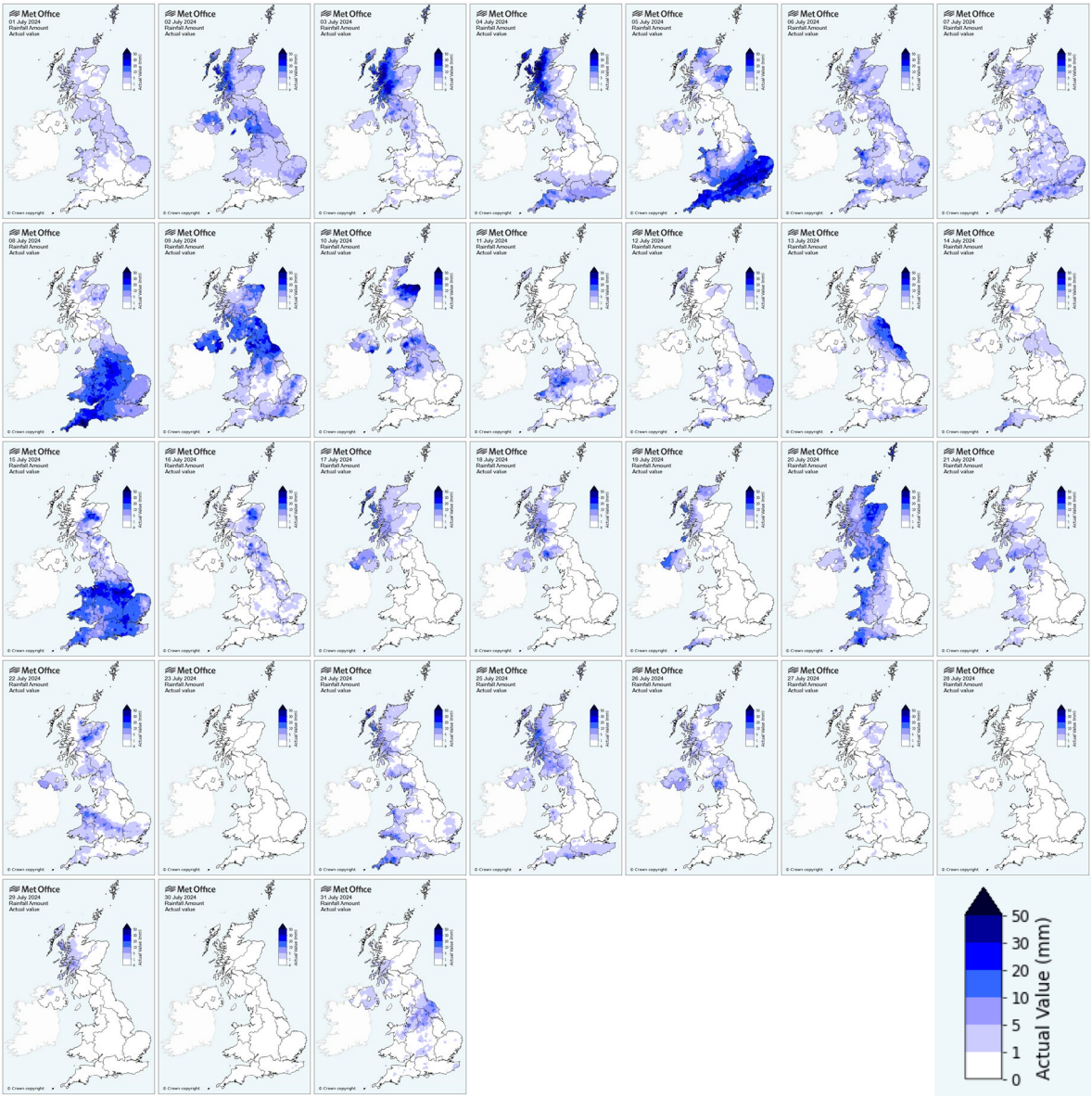
Mon	Tue	Wed	Thu	Fri	Sat	Sun



Daily rainfall maps - calendar view

These maps show daily rainfall for each day of July 2024 as daily totals. The daily rainfall is the total from 0900UTC on the day in question to 0900UTC the following day.

Mon	Tue	Wed	Thu	Fri	Sat	Sun

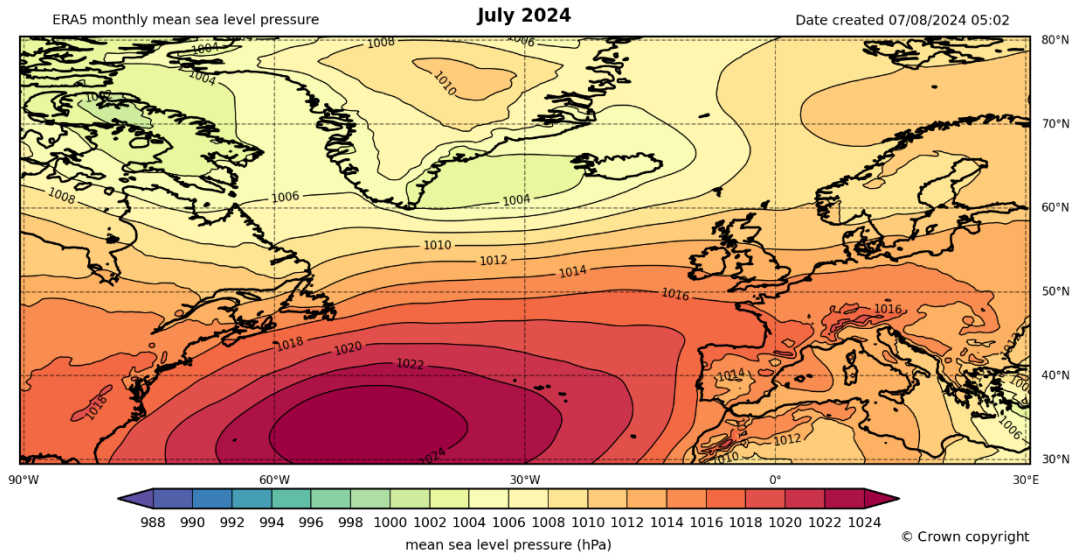


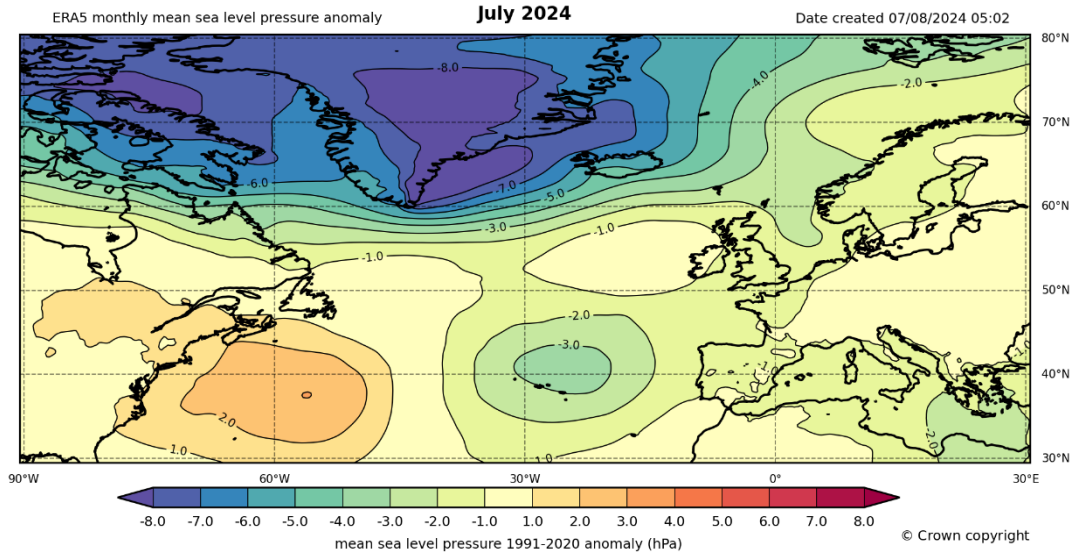
Monthly atmospheric circulation

Mean sea level pressure

These charts show the monthly mean sea level pressure for July 2024 for the UK and north Atlantic, based on the ERA5 reanalysis (Hersbach et al, 2019), both as actual values and as an anomaly relative to the July long term average. These charts provide an indication of the weather characteristics of the month overall i.e. whether the weather type has been generally settled (high pressure) or unsettled (low pressure) during the month.

Pressure was near normal across the UK in July. A large negative pressure anomaly was situated over Greenland.

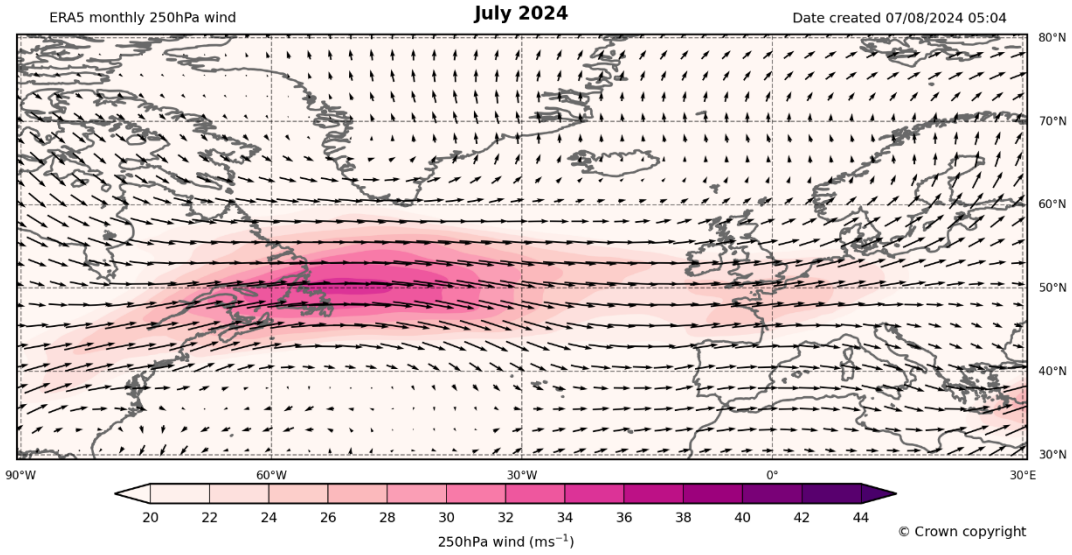


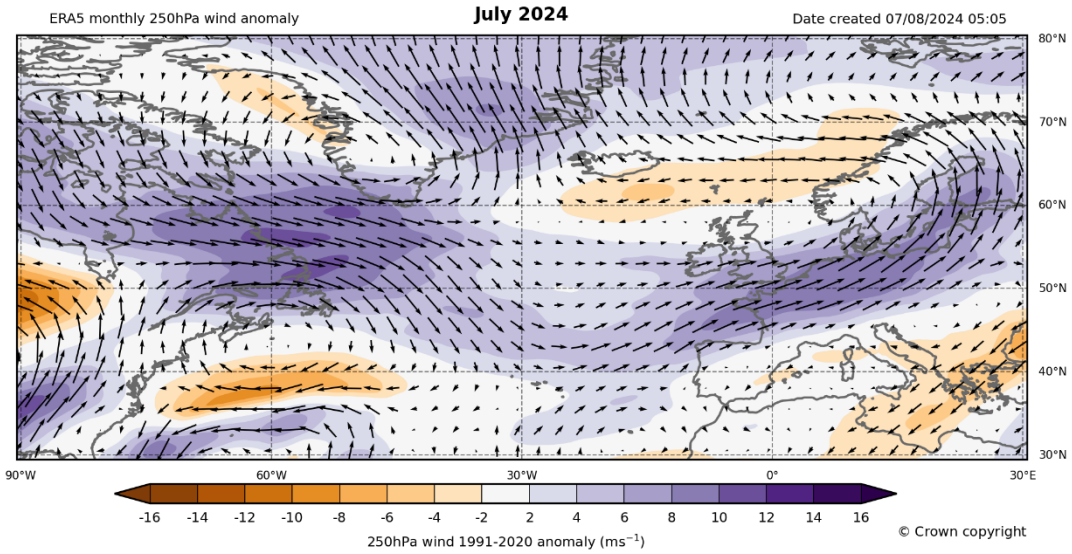


250hPa wind speed and direction

These charts show the monthly 250hPa wind speed and direction for July 2024 for the UK and north Atlantic, based on the ERA5 reanalysis (Hersbach et al, 2019), both as actual values and as an anomaly relative to the July long term average. This provides an indication of the mean strength and position of the jet stream compared to normal. The wind anomaly map shows shaded (scalar) wind speed anomalies with arrows as (vector) wind anomalies.

The UK was situated in a stronger than normal westerly to south-westerly jetstream in July, especially the southern half of the country.





Weather diary

- **Generally cool and wet, windy at times, warmer towards the end**

The weather over the UK for July was dominated by low pressure systems with only the occasional brief respite from a ridge of high pressure, resulting in generally cool and unsettled conditions for most of the month. A classic north south split existed for the bulk of the month with cooler temperatures across the north, and more average to warm conditions to the south. A change in wind direction towards the end of the month eventually allowed temperatures to climb to well above average but, again, this was not sustained.

The 1st to the 9th saw several Atlantic depressions cross the UK bringing wet and windy weather. Gusts exceeded 50mph at times on the 4th and 5th over parts of Northumberland and along the south coast. Low pressure developed in the southwest approaches on the 8th, drifted slowly north and east producing some significant rainfall for the southwest, past of Wales and the West Midlands. Totals in excess of 70mm were recorded over Cornwall, with other stations reporting 30mm or more. This trend continued further north on the 9th when the east coast and parts of Cumbria were hardest hit. The coast of Yorkshire and Redcar and Cleveland saw more than 50mm in places, with the Lake District seeing totals exceed 40mm.

High pressure made some tentative steps to move in between the 10th and 17th to settle things down but never really achieved it with somewhere in the UK seeing rain or showers at some time. Eventually, an area of high pressure developed over the near continent, allowing for a southwesterly airstream to become established over the country. Temperatures now climbed into the mid to high 20s Celsius over the bulk of England and Wales, but still a little cooler for Scotland and Northern Ireland. By the 19th, maximums were hitting 30°C in the southeast, and by the 21st, temperatures were back down to average.

Another series of systems off the Atlantic influenced the weather over the UK from the 21st to the 27th before high pressure centred in the North Sea saw us through to the end of the month and gave the UK its highest temperatures with some places in the southeast touching 32.0°C.

Notes

The Met Office National Meteorological Library and Archive holds a near-continuous record of monthly weather reports from 1884, and this report forms a continuation of that series. The purpose of each report is to provide an overview of the weather conditions across the UK for that month. The emphasis is mainly based on observations from the surface network of weather stations. Climate series based on from data from these stations are used to provide long term context.

This summary was produced on 07/08/2024 09:08. The statistics are a provisional assessment of the observational data available at the time of production. Ongoing data receipt and quality assurance processes may result in subsequent updates to the statistics presented.

If you have any questions or feedback about this product, spot any data errors or omissions, or wish to obtain further data, please contact the Met Office.

For historical monthly weather reports please visit the Library and Archive.

- The land-surface observations presented in this report are from the Met Office official weather station network which includes both automatic weather stations and manual climate stations operated by volunteer observers. Rainfall data are from the official registered rain-gauge network which includes rain-gauges operated by a number of key partners including the Environment Agency, Scottish Environmental Protection Agency and Northern Ireland Water.
- The observations are carefully managed such that they conform to current best-practice observational standards as defined by the World Meteorological Organization (WMO). The observations also pass through a range of quality assurance procedures at the Met Office before application for climate monitoring.
- Daily and monthly maps, monthly statistics and monthly time-series are primarily based on the HadUK-Grid dataset of 1km resolution UK gridded climate data (Hollis et al, 2019). Monthly statistics from the monthly Central England temperature series 1659 (Manley, 1974) and England and Wales precipitation series from 1766 (Wigley et al, 1984) provide long term context.
- The monthly lightning activity map is based on data from the Met Office ATDnet (Arrival Time Difference Network) system. This is an automatic lightning location network comprising around ten lightning outstation sensors located across Europe.
- The monthly maps of mean sea level pressure and 250hPa wind speed and direction are based on the ERA5 reanalysis (Hersbach et al, 2019). ERA5 is the fifth generation ECMWF reanalysis for the global climate and weather for the past 4 to 7 decades. Reanalysis combines model data with observations from across the world into a globally complete and consistent dataset using the laws of physics.

Hersbach, H., Bell, B., Berrisford, P., Biavati, G., Horányi, A., Muñoz Sabater, J., Nicolas, J., Peubey, C., Radu, R., Rozum, I., Schepers, D., Simmons, A., Soci, C., Dee, D., Thépaut, J-N. (2019): ERA5 monthly averaged data on single levels from 1959 to present. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). https://doi.org/10.24381/cds.f17050d7

Hollis, D, McCarthy, MP, Kendon, M, Legg, T, Simpson, I. HadUK-Grid - A new UK dataset of gridded climate observations. Geosci Data J. 2019; 6: 151-159. https://doi.org/10.1002/gdj3.78

Manley, G. (1974), Central England temperatures: Monthly means 1659 to 1973. Q.J.R. Meteorol. Soc., 100: 389-405. https://doi.org/10.1002/qj.49710042511

Wigley, T.M.L., Lough, J.M. and Jones, P.D. (1984), Spatial patterns of precipitation in England and Wales and a revised, homogeneous England and Wales precipitation series. J. Climatol., 4: 1-25. https://doi.org/10.1002/joc.3370040102

Met Office Crown Copyright.